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AUTHOR Frankel, Arthur; Snyder, Melvin L.
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ABSTRACT

People often perform poorly on tasks following experience with unsolvable problems. Two competing explanations for this performance deficit (learned helplessness and egotism) were tested. Subjects were given either solvable or unsolvable discrimination problems and then a series of anagrams which were alleged to be either highly or moderately difficult. Subjects previously given unsolvable problems did better on the anagrams when led to believe the anagrams were highly difficult. This result is contrary to a learned helplessness theory interpretation which attributes performance deficits following unsolvable problems to the belief that outcomes are independent of responses. Instead, this result supports an egotism explanation which maintains that people are not likely to try hard on a task following experience with unsolvable problems. That is, following failure, people are not likely to try hard on a task, unless a poor performance would not pose a further threat to their self-esteem. (Author)

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Poor Performance After Unsolvable Problems: Learned Helplessness or Self-Esteem Protection?

Arthur Frankel*
University of Connecticut Health Center
Melvin L. Snyder
Dartmouth College

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*Arthur Frankel is now at Salve Regina -- The Newport College, Newport, RI 02840

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Abstract

People often perform poorly on tasks following experience with unsolvable problems. The current experiment tests two competing explanations (learned helplessness, egotism) for this performance deficit. Subjects were given either solvable or unsolvable discrimination problems and then a series of anagrams which were alleged to be either highly or moderately difficult. Subjects previously given unsolvable problems did better on the anagrams when led to believe the anagrams were highly difficult than when led to believe the anagrams were moderately difficult. This result is contrary to a learned helplessness theory interpretation which attributes performance deficits following unsolvable problems to the belief that outcomes are independent of responses. Instead, this result supports an egotism explanation which maintains that people are not likely to try hard on a task following experience with unsolvable problems, that is, following failure, unless a poor performance would not pose a further threat to their self-esteem.

Poor Performance After Unsolvable Problems: Learned Helplessness or Self-Esteem Protection?

Experience with unsolvable problems generally impairs performance on subsequent problem solving tasks. Many investigators have interpreted this performance decrement as evidence for human learned helplessness (see Maier and Seligman, 1976, for a review of these studies). Learned helplessness theory claims that as a result of exposure to unsolvable problems human subjects are likely to give up on subsequent tasks, and thus perform poorly, because they develop the expectation that responding will not affect outcomes (Maier and Seligman, 1976).

This study focuses on an alternative explanation for this performance deficit: individuals performing poorly or who anticipate doing poorly may not try very hard in order to reduce the impact that poor performance otherwise would have on self-esteem. By not trying hard, an individual is able to attribute a poor showing to lack of effort and avoid an attribution to lack of skill, a more threatening conclusion. Several writers have argued that not trying hard is an excellent strategy for someone worried about and anticipating doing poorly (e.g., Birney, Burdick, and Teevan, 1969; Lazarus, Deese, and Osler, 1952), and there is evidence that people will attempt to downplay failure by claiming to have used little effort (Miller, 1976).

It is conceivable, then, that individuals expecting to do poorly at a task will deliberately withhold effort not because they are helpless, but rather because they are attempting to reduce the impact that their anticipated poor performance would

have on self-esteem. The current study tests this hypothesis by manipulating the apparent difficulty of the test task. By eliminating an individual's responsibility for a poor performance one can reduce the threat this poor performance poses to self-esteem (Snyder, Stephan, and Rosenfield, 1978). A task that ostensibly is very difficult should accomplish just this. In support of this reasoning are data which show that persons chronically worried about doing poorly on achievement-like tasks do better or persist longer when tasks are presented as highly difficult rather than moderately difficult (Feather, 1961, 1963; Karabenick & Youssef, 1968; Sarason, 1961).

What does learned helplessness theory predict about the effects of apparent task difficulty on performance? It seems apparent that describing a task as exceptionally difficult should strengthen the expectation that outcomes are uncontrollable. And it is the expectation of uncontrollability that is at the core of learned helplessness (Maier & Seligman, 1976, pp. 16-19). Thus, learned helplessness theory leads us to expect less effort and consequently worse performance from helpless individuals as the apparent difficulty of a task is increased, exactly opposite the prediction derived from a self-esteem perspective.

Subjects:

Forty-one subjects participated in this experiment, 31 male and 10 female college students. They were solicited through and advertisement in the school newspaper and were paid $4.00 for their participation. An equipment malfunction prevented us from collecting data from 1 male subject.

Procedure:

Subjects were randomly assigned to one of four conditions. Half the subjects were given contingent and half given noncontingent feedback on four computerized discrimination learning problems similar to the ones employed in previous learned helplessness investigations (e.g., Hiroto and Seligman, 1975). Subjects were to indicate, on each of ten trials for each of four problems, which of two stimulus patterns contained a "correct" stimulus value. These stimulus patterns were composed of five dimensions and each pattern always contained one of two possible values from each of these dimensions. Each pair of patterns was presented for five seconds on a cathode ray computer screen. After the tenth trial of each problem subjects were required to indicate the correct stimulus value. The specific schedules employed for the noncontingent feedback were obtained from Hiroto and Seligman (1975). Subjects given contingent feedback were given, in effect, solvable problems, and subjects given noncontingent feedback were given, in effect, unsolvabe problems.

Following the discrimination learning problems half the subjects were informed that their next task, a series of 20 anagrams, would be extremely difficult while the other half were informed that these same anagrams would be only moderately difficult. All subjects were given one anagram at a time by the experimenter and they were given 100 seconds to solve each one.

The principal dependent measures were the number of anagrams solved and average solution time per anagram.

Effectiveness of the Feedback Manipulation:

The Contingent/Noncontingent feedback manipulation appears to have been quite successful. Subjects given noncontingent feedback perceived their performance as significantly worse (1.93 vs. 4.35; F (1,36)=33.74, $p<.01$ and their control as significantly less (4.38 vs. 5.70; F (1,36)=7.83, $p<.01$ than subjects provided with contingent feedback on the discrimination learning problems.

Anagram Performance

Analyses of variance were performed on both measures of anagram performance. Each analysis found an interaction pattern supportive of the self-esteem interpretation of the performance decrement in question, $p<.07$ for average solution time and $p<.01$ for number of anagrams solved. Tables 1 and 2 display the mean anagram performance of subjects in the four conditions. You can see that subjects initially given unsolvable problems did worse on both measures of anagram performance than subjects initially given solvable problems only when the anagrams were described as moderately difficult. These subjects solved fewer anagrams ($p<.01$) and took longer to solve each one on the average ($p<.05$) than subjects given solvable problems. When the anagrams were purported to be highly difficult the solvable and unsolvable problems conditions did not differ.

You can also see in Tables 1 and 2 that subjects given unsolvable problems did better on the anagram task when the anagrams were described as highly difficult rather than moderately difficult. Though this difference is only directional on the time-to-solution measure ($p<.25$), it is significant for the number of anagrams solved ($p<.05$). Subjects given an effective so called helplessness induction did better, then, when they thought the anagrams were extremely difficult.

Table 3 presents the mean number of anagrams solved in the first and second half of the 100 second time limit imposed upon subjects. Purported anagram difficulty had little apparent effect on the performance of these subjects in the first half of the time limit ($F(1,36)<1$) and a highly significant effect on performance in the second half of the time limit ($F(1,36)=18.64, p<.001$). This finding indicates that subjects given unsolvable problems persisted longer, i.e., tried harder, in the second half of the 100 second time limit when they thought the anagrams were extremely difficult than when they thought they were moderately difficult.

Discussion

This study examined two explanations for why people tend to perform poorly on tasks after experience with unsolvable problems. Learned helplessness theory argues that individuals given unsolvable problems give up on subsequent tasks, and thus do poorly on them, because they developed the expectation that their outcomes are independent of their responses. The theory employs the intuitive argument that individuals will not try hard when they realize their efforts are likely to go unrewarded.

There is another reason why such an expectation may reduce motivation and consequently impair performance on problem solving tasks. Individuals expecting to do poorly on a task may give up and, in effect, do poorly on purpose in order to downplay the significance of their anticipated poor showing.

We were able to reduce the impact that a poor performance has on self-esteem by telling half of our subjects that their task was extremely difficult. Subjects anticipating a poor performance have little need to withold effort in order to protect self-esteem

when they believe their task is quite difficult.

Learned helplessness theory, on the other hand, cannot argue that a highly difficult task would encourage helpless individuals to expend effort. Since outcomes would seem farther out of reach on such a task, helpless individuals should only be more strongly persuaded that their behavior will have little, if any, effect on their outcomes. Thus, through a manipulation of purported test task difficulty we were able to pit the learned helplessness explanation against the self-esteem explanation for the performance decrement that is characteristic of persons exposed to unsolvable problems.

A "helplessness" effect emerged in this study, bur only when subjects thought the test was moderately difficult. Subjects initially given unsolvable discrimination learning problems did significantly worse on the anagrams than subjects provided with solvable problems when the anagrams were alleged to be moderately difficult. When subjects believed the anagrams were highly difficult, however, no "helplessness" effect was obtained; subjects given unsolvable problems did as well on the anagrams as subjects given solvable problems. Furthermore, subjects who were given the "helplessness" induction (unsolvable problems) did better on the anagrams when they thought the anagrams were highly as opposed to moderately difficult.

It is difficult to see how learned helplessness theory can account for the fact that a performance decrement was obtained only when subjects thought their test task was moderately difficult. This is just as true for the recent attributional reformulation of the theory as well. On the other hand, if experience with unsolvable problems leads individuals not to try hard in order to ward

off a potential blow to self-esteem, it makes sense that no performance decrement was obtained when the anagrams were described as extremely difficult. Individuals anticipating a poor performance need not be anxious about this performance, and thus do not need to protect themselves by withholding effort, when their task is apparently very difficult. A high degree of difficulty provides a perfectly acceptable excuse for failure.

We suspect that worrying about the implications of performing poorly could not only encourage reduced effort expenditure but also could disturb performance by interfering with information processing directly. Sarason (1975), for example, states that worry or self-preoccupation "may intrude on information processing at three points: attention to environmental cues, encoding and transformation of these data, and selection of an overt response"(p.33). Observational data from other research suggest that excessive concern about performance might reduce the quality of performance in both of these ways.

Miller and Seligman (1975), for instance, report that subjects exposed to an unsolvable task subsequently appeared well-motivated during the initial stages of a second task (a series of anagrams). These subjects did seem to give up, though, after their first few anagram failures and in addition appeared to show "decreased concern over their poor performance"(p.236). These investigators speculated that the initial anagram failures may have been caused by "some sort of cognitive interference"(p.236). Exposure to unsolvable problems has been shown to make people anxious (Miller & Seligman, 1975) as well as hostile (Hiroto & Seilgman,1975; Klein, Pencil-Morse, & Seilgman, 1976; Krantz, Glass, & Snyder, 1974; Miller & Seligman, 1975) and heightened emotionality could inter-

fere with performance by reducing attention toward the task at hand. If Miller and Seligman's subjects gave up in order to reduce the significance of their poor performance one would expect them to show decreased concern. It is worth noting that learned helplessness theory refers neither to the kind of "cognitive intereference" specified above nor to why giving up should reduce concern over performance.

The use of strategies which enable people to ward off indications of their incompetence is probably not uncommon. Specifically, when negative outcomes are anticipated and one's self-esteem is at stake, there may be some desire to create ambiguity about the cause of one's behavior. Losing a tennis match, for example, would be less threatening if one could claim to be concerned with developing skills rather than with winning, and failing an exam would be less devastating if one did not study particularly hard than if one had studied thoroughly. Berglass and Jones (1978), using a different paradigm, offer corroborating evidence for this view.

In a recent study, they found that following undeserved (noncontingent) success male subjects chose a performance inhibiting drug, actually a placebo, rather than a performance enhancing drug, again really a placebo, prior to a further attempt to solve similar problems. Males experiencing deserved (contingent) success preferred the performance enhancing drug. By choosing the performance inhibiting drug, Berglass and Jones' male subjects not only could remove the possibility that their previous success could be challenged by subsequent failure, but could create ambiguity about the cause of their anticipated failure as well. Berglass and Jones (1978) suggest that "diagnostic information will be

avoided when the chances are good that such information will indicate inferior competence." The current study supports this proposition. It argues that the performance decrement typically obtained after subjects have been exposed to unsolvable problems is the result of a strategy to protect self-esteem through low effort expenditure rather than a direct result of feeling helpless.

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TABLE 1

Number of Anagrams Solved

(out of 20)

Pretreatment		PURPORTED DIFFICULTY OF ANAGRAMS Moderate	High
Contingent Feedback	$\bar{X}$	13.80	11.50
(solvable problems)	n	10	10
	SD	(3.16)	(2.42)
Non-Contingent Feedback	$\bar{X}$	9.45	12.78
(unsolvable problems)	n	11	9
	SD	(3.56)	(2.64)

TABLE 2

Average Solution Time per Anagram

Pretreatment		PURPORTED DIFFICULTY OF ANAGRAMS Moderate	High
Contingent Feedback	$\bar{X}$	52.0	60.4
(solvable problems)	n	10	10
	SD	(15.33)	(8.13)
Non-Contingent Feedback	$\bar{X}$	65.2	58.6
(unsolvable problems)	n	11	9
	SD	(12.82)	(11.43)

Note. Latencies were recorded to the nearest fifth of a second.

TABLE 3

Number of Anagrams Solved in the First and Second Half of Time Limit

		PURPORTED DIFFICULTY OF ANAGRAMS			
		Moderate		High	
Pretreatment		1st half	2nd half	1st half	2nd half
Contingent Feedback (solvable problems)	$\bar{X}$	11.10	2.70	8.70	2.80
	n	10	10	10	10
	SD	(3.63)	(1.70)	(2.21)	(1.32)
Non-Contingent Feedback (unsolvable problems)	$\bar{X}$	8.09	1.36	8.89	3.89
	n	11	11	9	9
	SD	(3.51)	(0.67)	(2.26)	(1.36)

Note. There was a 100 second time limit for each anagram. Anagrams solved within the first 50 seconds were solved in the first half of the time limit. Anagrams solved in more than 50 seconds were solved in the second half of the time limit.